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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,976	04/02/2004	Atsushi Fukui	BJS-900-495	7726
23117 7590 02/02/2010 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
TRINH, THANH TRUC				
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1795				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/815,976

**Applicant(s)**

FUKUI ET AL.

**Examiner**

THANH-TRUC TRINH

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 21, 26-28 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 21, 26-28 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

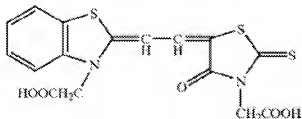
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(e) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-2, 21, 26-28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lupo et al. (US Patent 5885368) in view of Andriessen et al. (WO 2004/025748), and as evidenced by Gaudiana et al. (US 2005/0257827)

Regarding claims 1-2, as seen in Figure 1, Lupo et al. teaches a dye-sensitized solar cell comprising a transparent conductive layer (11), a porous semiconductor of titanium oxide (12) on which a dye sensitizer is adsorbed, a carrier transport layer (14) and an counter electrode (15) which are formed in this order on a transparent substrate (16). (See col. 2 lines 30-57). Lupo et al. also teaches dye sensitizer is made of ruthenium metal complex dye such as cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylate)-ruthenium(II) (See formular VIII). Lupo et al. further teaches the semiconductor layer is subjected to a warm air treatment (See col. 26 lines 58-67 bridging col. 27 lines 1-3, or col. 27 lines 40-52). Therefore it is the Examiner's position that the absorbance peak of the porous semiconductor of Lupo et al. is located on a shorter wavelength side of the absorbance spectrum than that of the porous semiconductor layer observed immediately after the dye sensitizer is adsorbed, as indicated from Applicant's disclosure that this characteristic is a result of a thermal treatment (See Specification, page 13).

Lupo et al. does not explicitly teaches the dye sensitizer (or the methine dye) of



or ruthenium dye of tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid, tris-tetrabutylammonium salt.

Andriessen et al. teaches using organic dyes (SSOD) having the same ring structure as the ring structure above with varying substituents (see formula of SSOD organic dye on pages 16-17), and the anion form of black dye ruthenium 620 (tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid – see page 18). Note that the neutral form of black dye is tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid, tris-tetrabutylammonium salt as evidenced by Gaudiana et al. (see paragraph 0160).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Lupo et al. by using the organic dye sensitizer as taught by Andriessen et al., because Andriessen et al. teaches that these organic dyes are suitable spectrally sensitizing dyes. (See page 16 of Andriessen et al.). Organic dyes SSOD of Andriessen et al. and claimed organic dye are homologs are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. (See MPEP 2144.09). In such combination, it is the Examiner's position that the black dye has the absorbance peak of the porous semiconductor layer is located within the range of  $580\text{ nm} \pm 35\text{ nm}$ . In addition, the claimed limitations describing steps to treat the porous semiconductor layers such as light radiation treatment are process limitations that do not add any structural limitations to the device and thus are not given weight in the apparatus claim. The determination of patentability is based on the product itself, not on its method of production. See MPEP 2113.

Regarding claim 21, the claimed limitation describing steps to treat the porous semiconductor layers such as light radiation is a process limitation. The determination of patentability is based on the product itself, not on its method of production. See MPEP 2113.

Regarding claim 26, Andriessen et al. teaches using a black dye ruthenium 620 with the anion portion of (tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid – see page 18). Note that the neutral form of black dye is tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid, tris-tetrabutylammonium salt as evidenced by Gaudiana et al. (see paragraph 0160).

Regarding claim 27, Andriessen et al. teaches using organic dyes (SSOD) having the same ring structure as the ring structure above with varying substituents (see formula of SSOD organic dye on pages 16-17) which are homologs to instant claimed dye sensitizer; therefore Andriessen et al's dyes and instant claimed dye are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. (See MPEP 2144.09)

Regarding claims 28 and 35, the limitations describing chemical treatment carried out by immersing the porous semiconductor layer in a solution of at least 30 times as much that of the porous semiconductor layer by volume, and the time lapse for chemical treatment are process limitations that do not add any structural limitations to the device and thus are not given weight in the apparatus claim. The determination of patentability is based on the product itself, not on its method of production. See MPEP 2113.

6. Claims 1, 2, 21, 27-28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (US 2002/0040728).

Regarding claims 1-2 and 27, as seen in Figure 1, Yoshikawa discloses a dye-sensitized solar cell comprising a transparent conductive layer (10), a porous semiconductor of titanium oxide (20) on which a dye sensitizer (22) is adsorbed, a carrier transport layer (30) and an counter electrode (40) which are formed in this order on a transparent substrate (50). (See paragraphs [0069] and [0074]-[0111]). Yoshikawa also teaches the dye sensitizer is made of ruthenium metal complex dye such as cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium (II). (See formula III and R-10 in paragraph [0111]), or organic methine dye (See formula M-3 in page 14). Yoshikawa further teaches the dye-sensitized semiconductor is subjected to a chemical treatment with heteroatom-containing compounds such as tetrahydrofuran, imidazole, etc., to improve the efficiency, (See paragraphs [0027]-[0067]), therefore it is the Examiner's position that the absorbance peak of the porous semiconductor of Yoshikawa is located on a shorter wavelength side of the absorbance spectrum than that of the porous semiconductor layer observed immediately after the dye sensitizer is adsorbed, as indicated from Applicant's disclosure that this characteristic is a result of a chemical treatment (See Specification, pages 13-15). It would have been obvious to one skilled in the art to use the organic methine dye as claimed, because the organic methine dye of Yoshikawa and the claimed organic methine dye are homologs which are generally of sufficiently close structural similarity and used for the same purpose (dye sensitizer) that there is a presumed expectation that such compounds possess similar properties. In addition, the claimed limitations describing steps to treat the porous semiconductor layers such as light radiation treatment, chemical treatment

carried out by immersing the porous semiconductor layer in a solution of at least 30 times as much that of the porous semiconductor layer by volume, and the time lapse for chemical treatment are process limitations that do not add any structural limitations to the device and thus are not given weight in the apparatus claim. The determination of patentability is based on the product itself, not on its method of production. See MPEP 2113.

Regarding claim 21, the claimed limitation describing steps to treat the porous semiconductor layers such as light radiation is a process limitation. The determination of patentability is based on the product itself, not on its method of production. See MPEP 2113.

Regarding claims 28 and 35, the limitations describing chemical treatment carried out by immersing the porous semiconductor layer in a solution of at least 30 times as much that of the porous semiconductor layer by volume, and the time lapse for chemical treatment are process limitations that do not add any structural limitations to the device and thus are not given weight in the apparatus claim. The determination of patentability is based on the product itself, not on its method of production. See MPEP 2113.

7. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (US 2002/0040728) in view of Andriessen et al. (WO 2004/025748), and as evidenced by Gaudiana et al. (US 2005/0257827)

Yoshikawa teaches a dye-sensitized solar cell as applied to claims 1, 2, 21, 27-28 and 35 above.



Yoshikawa discloses the general formula of ruthenium dye sensitizer, but does not specifically list out tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid, tris-tetrabutylammonium salt.

Andriessen et al. disclose teaches using black dye (e.g. the anion form of tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid – see page 18). Note that the neutral form of black dye is tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid, tris-tetrabutylammonium salt as evidenced by Gaudiana et al. (see paragraph 0160).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Yoshikawa using black dye sensitizer as taught by Andriessen et al., because Andriessen et al. teaches that these organic dyes are suitable spectrally sensitizing dyes. (See page 16 of Andriessen et al.). In the such combination, it is the Examiner's position that the black dye has the absorbance peak of the porous semiconductor layer is located within the range of 580 nm  $\pm$  35 nm.

#### ***Response to Arguments***

8. Applicant's arguments and declaration filed 11/30/2010 have been fully considered but they are not persuasive.

#### ***Declaration under 37 C.F.R. 1.132***

Applicant compares three dye-sensitized solar cells using cis-bis(isothiocyanato)bis-(2,2'-bipyridyl-4,4'-dicarboxylato)ruthenium (II) trade name Ruthenium 535 made by Solaronix Co. as

the dye sensitizer, wherein the porous semiconductor layer of each solar cell was treated differently.

**Solar cell 1:** (or Experiment 1 of Applicant's invention): the chemical treatment was carried out by acetonitrile solution of 0.2 M dimethylpropylimidazolium iodide.

**Solar cell 2:** (or Yoshikawa's): the chemical treatment was carried out by acetonitrile solution of 0.2 M t-butyl pyridine.

**Solar cell 3:** untreated.

Applicant also describes the solar cell of Yoshikawa was treated according to Table 1 in paragraph [0193] with TBP (t-butyl pyridine) as an additive of a treatment liquid of example 1. Applicant further argues that the result shows that Applicant's treatment of the porous semiconductor layer with dimethylpropylimidazolium iodide demonstrating a shift of absorbance peak on the shorter wavelength.

However, the declaration under 37 CFR 1.132 filed 11/30/2009 is insufficient to overcome the rejection of claims 1-2, 21-28 and 35.

First of all, it refers only to the system described in the above referenced application and not to the claims of the application as none of the claim recites using bis(isothiocyanato)bis-(2,2'-bipyridyl-4,4'-dicarboxylato)ruthenium (II). To be given substantial weight in the determination of obviousness or nonobviousness, evidence of secondary considerations must be relevant to the subject matter as claimed, and therefore the examiner must determine whether there is a nexus between the merits of the claimed invention and the evidence of secondary considerations.

*Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 305 n.42, 227 USPQ 657, 673-674 n. 42 (Fed. Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986). The term "nexus" designates

a factually and legally sufficient connection between the objective evidence of nonobviousness and the claimed invention so that the evidence is of probative value in the determination of nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 7 USPQ2d 1222 (Fed. Cir.), *cert. denied*, 488 U.S. 956 (1988). See MPEP 716.01(b). Applicant fails to make a sufficient connection between the objective evidence of nonobviousness and the claimed invention. As such the declaration does not show that the objective evidence of nonobviousness is commensurate in scope with the claims. Whether the unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, the "objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support." In other words, the showing of unexpected results must be reviewed to see if the results occur over the entire claimed range. *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980) (Claims were directed to a process for removing corrosion at "elevated temperatures" using a certain ion exchange resin (with the exception of claim 8 which recited a temperature in excess of 100C). Appellant demonstrated unexpected results via comparative tests with the prior art ion exchange resin at 110C and 130C. The court affirmed the rejection of claims 1-7 and 9-10 because the term "elevated temperatures" encompassed temperatures as low as 60C where the prior art ion exchange resin was known to perform well. The rejection of claim 8, directed to a temperature in excess of 100C, was reversed.). See also *In re Peterson*, 315 F.3d 1325, 1329-31, 65 USPQ2d 1379, 1382-85 (Fed. Cir. 2003) (data showing improved alloy strength with the addition of 2% rhenium did not evidence unexpected results for the entire claimed range of about 1-3% rhenium); *In re Grasselli*, 713 F.2d 731, 741, 218 USPQ 769, 777 (Fed. Cir. 1983) (Claims were directed to certain catalysts containing an alkali metal. Evidence

presented to rebut an obviousness rejection compared catalysts containing sodium with the prior art. The court held this evidence insufficient to rebut the *prima facie* case because experiments limited to sodium were not commensurate in scope with the claims.). See MPEP 716.02(d).

Secondly, Applicant fails to compare the claimed invention with the closest subject matter that exists in the prior art as Yoshikawa teaches t-butyl pyridine is the additive, not the actual chemicals for treating the semiconductor layer. The actual chemicals for treating semiconductor layer are compounds I and compounds II (See paragraphs 0025-0026 of Yoshikawa). Applicant states that the treatment was carried out according to Table 1 in Yoshikawa. However, there is only one result from the comparative experiment 1 shown in the data, while table 1 of Yoshikawa contains eleven (11) treatments with different chemicals (I-1, I-6, I-7, I-5, I-21, I-23, I-9, etc... see the formulae of these chemicals in paragraph 0041) with four treatments including t-butyl pyridine (e.g. treatments TA-3, TA-5, TA-8, TA-9). Applicant has not explained why there is only one result for eleven treatments (or one result for four treatments including additive t-butylpyridine) in the table 1. Applicant also fails to indicate exactly which treatment was carried out in addition with the additive t-butyl pyridine. Furthermore, Yoshikawa also discloses treating the semiconductor layer with dimethylpropylimidazolium iodide (See paragraphs 0025-0026, formula II-18 of Yoshikawa). There is no comparison between treatment semiconductor with dimethylpropylimidazolium iodide disclosed by Applicant and a treatment including dimethylpropylimidazolium iodide as disclosed by Yoshikawa. Evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art which is commensurate in scope with the claims. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP § 716.02(d) - § 716.02(e).

See MPEP 716.02(b). An affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a *prima facie* case of obviousness. *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). "A comparison of the *claimed* invention with the disclosure of each cited reference to determine the number of claim limitations in common with each reference, bearing in mind the relative importance of particular limitations, will usually yield the closest single prior art reference." *In re Merchant*, 575 F.2d 865, 868, 197 USPQ 785, 787 (CCPA 1978) (emphasis in original). Where the comparison is not identical with the reference disclosure, deviations therefrom should be explained, *In re Finley*, 174 F.2d 130, 81 USPQ 383 (CCPA 1949), and if not explained should be noted and evaluated, and if significant, explanation should be required. *In re Armstrong*, 280 F.2d 132, 126 USPQ 281 (CCPA 1960) (deviations from example were inconsequential). See MPEP 716.02(e).

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.

Arguments filed 11/30/2009

Applicant argues that there is no suggestion in Lupo or Andriessen to combine the references, and Andriessen does not teach the tris-tetrabutylammonium salt required in the claims. Applicant also argues that SSOD-05 structure is not a homolog of the claimed methine dye because the ethyl group is not the homolog of carboxylic acid group. However, Applicant's arguments are not deemed to be persuasive. First of all, Lupo and Andriessen both teach using ruthenium dye (e.g. a specific class of dyes). Andriessen teaches using different ruthenium dyes for suitable spectral absorption (see page 16 of Andriessen et al.), wherein one of the ruthenium

dye is the black dye Ruthenium-620 (see page 18 of Andriessen). Andriessen only depicts the anion of the black dye Ruthenium-620. However, the cation of the black dye is known to be tris-tetrabutylammonium salt as supported in paragraph 0160 of Gaudiana et al.. Therefore the black dye of Andriessen et al. is the instant tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid, tris-tetrabutylammonium salt. Secondly, the black dye (trade name Ruthenium 620-1H3TBA dye) is commercially available and made by Solaronix, Swiss (See Applicant's specification, page 12, second paragraph). The claimed dye is well known in the art. Thirdly, SSOD-05 and Applicant's claimed methine dye are methine dyes having a main structure including ring structures connecting by alternating double bonds. This main structure is the structure that gives rise to the characteristic of absorbing light in the dye (as both Andriessen and instant claims referring to the molecules as dyes). The ethyl group and acetic acid (or carboxylic acid group) are the substituents to the benzothiazoline ring. Andriessen et al. also discloses carboxylic acid substituent to benzothiazoline is suitable (see the SSOD-03 of Andriessen et al.). Furthermore, Applicant has not provided any evidence to show the significance or unexpected result of the acetic acid substituent to the benzothiazoline in the methine dye structure.

Applicant also argues that formula defined by R-1 of Yoshikawa is not the claimed ruthenium dye and methine dye structure M-3 of Yoshikawa is not the homolog of the claimed methine dye structure. Again, Applicant's argument is not deemed to be persuasive. First of all Yoshikawa discloses using ruthenium dye having formula  $(A_1)_pRu(B-a)(B-b)(B-c)$  with  $A_1$  can be  $SCN$ ,  $p$  is an integer of 0 to 3, and B-a, B-b, and B-c can be independently terpyridine (see formulae B8 and R10, paragraphs 0107-0108). Yoshikawa does not specifically list out

tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,3',4''-tricarboxylic acid, tris-tetrabutylammonium salt, more specifically Yoshikawa does not disclose the cation group of the ruthenium dye being tris-tetrabutylammonium. Andriessen et al. teaches a ruthenium dye including terpyridine (similar to that disclosed by Yoshikawa) which is called black dye or Ruthenium -620 (see page 18 of Andriessen et al.). Gaudiana et al. supports the fact that "black dye" contains tris-tetrabutylammonium cation (see paragraph 0160 of Gaudiana et al.), and black dye (Ruthenium-620) is in fact the same as instant ruthenium dye (see Applicant's specification, page 12, second paragraph) which is commercially available. In regards to the methine dye structure M-3 of Yoshikawa, it is similar to the methine dye SSOD-05 of Andriessen et al. The ethyl group and acetic acid (or carboxylic acid group) are the substituents to the benzothiazoline ring, in which such substituent is not believed to significantly alter the function of light absorption of the methine dye. Furthermore, Applicant has not provided any evidence to show the significance or unexpected result of the acetic acid substituent to the benzothiazoline in the methine dye structure.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH-TRUC TRINH whose telephone number is (571)272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on 571-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT  
1/24/2010

/Basia Ridley/  
Supervisory Patent Examiner, Art Unit 1795